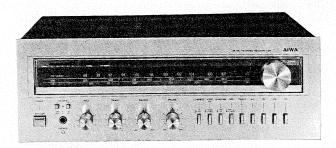
LW/MW/FM STEREO RECEIVER

NO. AX-7300E, K

AIWA

(SERVICE MANUAL)

Code No. 06-730-000-18



DATE OF ISSUE 11/1979

SPECIFICATIONS

< General >

Semiconductors:

Power Supply:

8 IC's, 1 FET, 28 transistors, 17 diodes, 9 LED's AX-7300E AC 220 V 50/60 Hz AX-7300K AC 240 V 50/60 Hz

Power Consumption: **External Dimensions:**

Weight: < Power Amplifier >

Circuit System: Power Output: According to DIN45 500: 20-20 kHz/THD 0.08%:

Dynamic Power:

Output Terminals: SPEAKERS

HEADPHONES Damping Factor:

< Preamplifier >

Input Terminals (Sensitivity/Impedance):
PHONO
PHONO Max. Rated Input 125 mV (rms)
AUX
150 mV/47 k ohms DIN (TAPE PLAY)

150 mV/470 k ohms Output Terminals (Level/Impedance):
DIN (TAPE REC OUT) 30 mV 30 mV/80 k ohms

Frequency Response

Frequency Response (Input with respect to REC OUT jacks):

PHONO (RIAA Curve) 30 Hz ~ 15 kHz ±1 dB

ALIX DIN (TAPE PLAY) 20 Hz ~ 50 kHz Tone Controls:

BASS ±10 dB (100 Hz)

400 Hz turnover frequency ±10 dB (10 kHz) 2.5 kHz turnover frequency

Loundness Response (with volume at -40 dB): SN Ratio

+8 dB (100 Hz), +4 dB (10 kHz)

According to DIN 45 500 PHONO AUX, DIN (TAPE PLAY) 52 dB PHONO AUX, DIN (TAPE PLAY) 90 dB < FM Tuner >

Usable Sensitivity Capture Ratio (IHF): Effective Selectivity:

Frequency Response:

DIN SN Ratio:

Distortion:

Separation:

Image Ratio: IF Rejection Ratio:

420(W) x 153(H) x 345(D) mm IHF

25W + 25W (4 ohms)

Complementary SEPP OCL

25W + 25W (4 ohms) 25W + 25W (8 ohms) 35W + 35W (4 ohms) 30W + 30W (8 ohms)

A or B 4 \sim 16 ohms A + B 8 \sim 16 ohms 8 ohms (4 ohms ~ 20 ohms)

30 (8 ohms)

< AM Tuner > Receiving Frequency Range:

Antenna Input Impedance:

Sensitivity (IHF):

Spurious Rejection:

AM Suppression:

IF Frequency:

Distortion: IF Rejection: Built-in Antenna: External Antenna Terminal: Image Ratio:

SN Ratio: IF Frequency:

Selectivity:

87.6 ~ 108 MHz Receiving Frequency Range: 50 dB Quieting Sensitivity: 4 μV (Mono) 44 μV (Stereo) 2 μV (Mono)

1.5 dB

55 dB (300 kHz) 65 dB (400 kHz) 73 dB (Mono)

68 dB (Stereo) 30 Hz ~ 15 kHz 0.4% (stereo), 0.25% (mono) 40 dB (at 1 kHz)

60 dB 65 dB 300 ohms (balanced) 75 ohms (unbalanced)

80 dB 50 dB 10.7 MHz

MW 530 \sim 1,605 kHz LW 150 \sim 340 kHz MW 300 μ V/m (built-in bar

30 µV (external antenna terminal)

1,000 μ V/m (built-in bar antenna) 50 μV (external antenna terminal)

30 dB 1% 35 dB Ferrite bar antenna Unbalanced MW 40 dB LW 50 dB

The specifications and external appearance of this set are subject to change without prior notice.

50 dB

DISASSEMBLY INSTRUCTIONS (AX-7300E, K)

1. To Remove Cabinet

1) Remove 7 screws. (Refer to Figure 1)

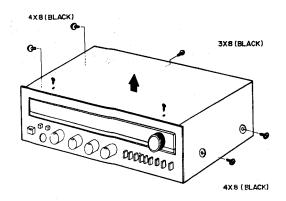


Fig. 1

2. To Remove Front Panel

1) Remove 5 screws. (Refer to Figure 2)

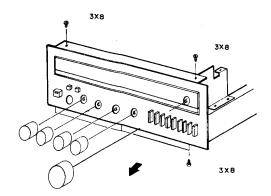


Fig. 2

3. To Remove LED Circuit Board

Remove 5 screws.
 (Refer to Figure 3)

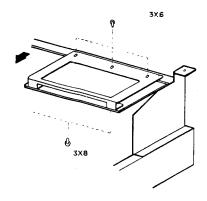


Fig. 3

4. To Remove Fuse Circuit Board

1) Remove 4 screws. (Refer to Figure 4)

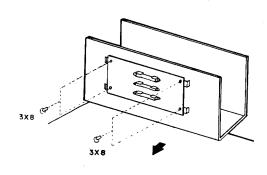


Fig. 4

5. To Remove I.C.

- 1) Remove 2 screws.
- 2) Remove 1 Bracket. (Refer to Figure 6)

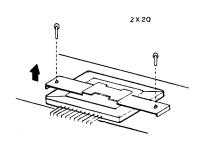


Fig. 5

6. To Remove Bottom Cover

1) Remove 14 screws. (Refer to Figure 5)

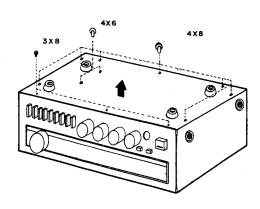


Fig. 6

7. To Remove Switch-2 Circuit Board

1) Remove 2 screws. (Refer to Figure 7)

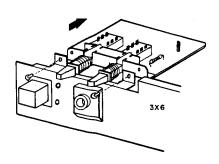


Fig. 7

8. To Remove Function Switch

1) Remove 8 screws. (Refer to Figure 8)

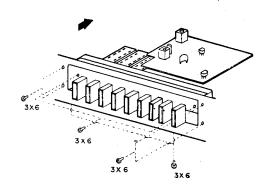
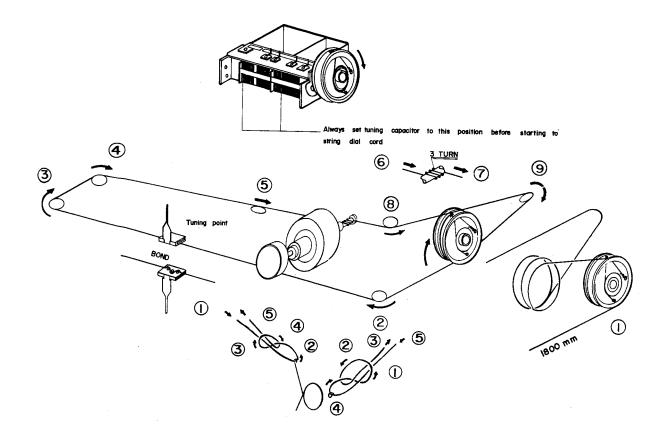
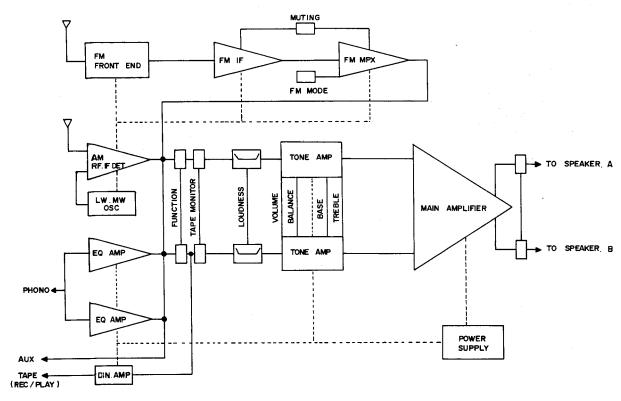


Fig. 8

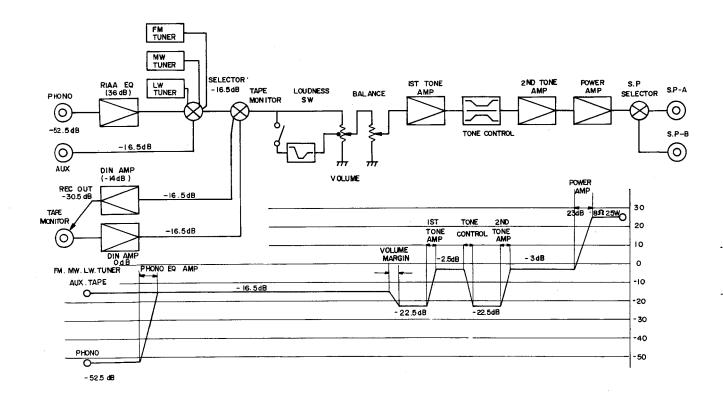
DIAL CORD STRINGING



BLOCK DIAGRAM

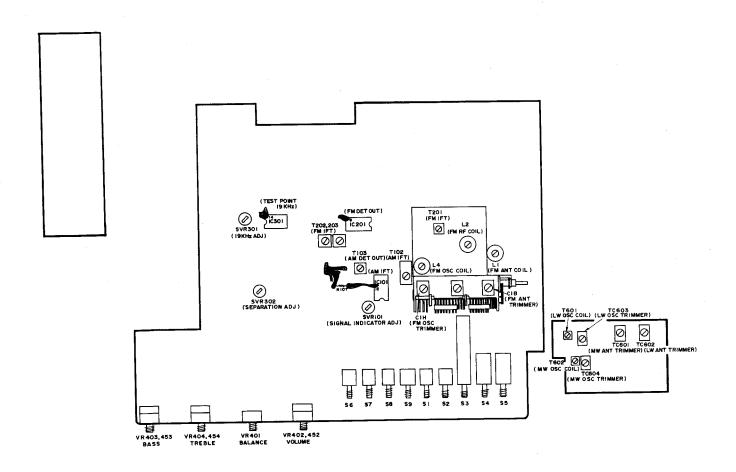


LEVEL DIAGRAM



ADJUSTMENTS

Location of Main Parts



1. Instruments Required

Signal Source

- 1. RF Signal generator (AM, FM).
- IF sweep generator (Centered 455 kHz for AM and 10.7 MHz for FM).

Output Indicator

- 1. V.T.V.M.
- 2. Oscilloscope

Regulator Adjusting Steps

For band	For stages on each band		
1. LW	1st: IF 2nd: RF frequency range 3rd: RF tracking		
2. MW	1st: IF 2nd: RF frequency range 3rd: RF tracking		
3. FM	1st: IF 2nd: RF frequency range 3rd: RF tracking		

AM-IF Alignment

Step	Signal source	Set signal to	Alignment indicator	Set radio dial to	Adjust	Adjust for	
	Connect to	-	Connect to		Aujust	Aujust for	
	AM IF sweep gen.	Sweep centered 455 k Hz	Oscilloscope				
1	Bar antenna		AM det. output tab	Min. Freq.	T102 T103	Maximum	

LW-RF Alignment

Step	Signal source	Set signal to	Alignment indicator	Set radio dial to	Adjust	Adjust to
oteb	Connect to	J Con Signar to	Connect to	Joe round did. 15	, tajast	
	AM signal gen.		V.T.V.M.			
1	Loop antenna	LW 140 kHz (Modulated)	AM det. output tab	140 kHz (Low end)	T601 (OSC coil)	Maximum
2	Loop antenna	360 kHz (Modulated)	AM det. output tab	360 kHz (High end)	TC603 (OSC trim.)	Maximum
3	(Repeat steps 1	and 2 to obtain frequ	uency range.)			
4	Loop antenna	200 kHz (Modulated)	AM det. output tab	200 kHz	L101 (ANT coil)	Maximum
5	Loop antenna	320 kHz (Modulated)	AM det. output tab	320 kHz	TC602 (ANT trim.)	Maximum
6	(Repeat steps 4	and 5 to minimize tr	acking error, and	also step 3 if necessar	ry.)	

MW-RF Alignment

Step	Signal source	Set signal to	Alignment indicator	Set radio dial to	Adjust	Adjust for
Step	Connect to	Set signal to	Connect to	Set radio diai to	Adjust	
	AM signal gen.		V.T.V.M.			
1 -	Loop antenna	525 kHz (Modulated)	AM det. output tab	525 kHz (Low end)	T602 (OSC coil)	Maximum
2	Loop antenna	1630 kHz (Modulated)	AM det. output tab	1630 kHz (High end)	TC604 (OSC trim.)	Maximum
3	(Repeat steps 1	and 2 to obtain frequ	uency range.)			
4	Loop antenna	600 kHz (Modulated)	AM det. output tab	600 kHz	L101 (ANT coil)	Maximum
5	Loop antenna	1400 kHz (Modulated)	AM det. output tab	1400 kHz	TC601 (ANT trim.)	Maximum
6	(Repeat steps 4	and 5 to minimize tr	acking error, and	also step 3 if necessar	ry.)	

FM-IF Alignment

Ston	Signal source		Alignment indicator	Set radio dial to	Adjust	Adjust for
Step	Connect to	Set signal to	Connect to	Set ladio diai to	Aujust	Adjust for
	FM IF sweep gen.		Oscilloscope			
1	113 (FM IF input)	Sweep centered 10.7 MHz	FM det. output tab	Max. Freq.	T201 T202	Max. Symmetrical response, equal heights
2	113 (FM IF input)	Sweep centered 10.7 MHz	FM det. output tab	Max. Freq.	Т203	Symmetrical response, centered 10.7 MHz
3	(Repeat 1 and 2 to c	btain a balanced "S	" curve linearity.)		

FM-RF Alignment

Step	Signal source	Set signal to Alignment indicator		Set radio dial to	Adjust	Adjust for
Step	Connect to	oct signar to	connect to		, Aujust	Aujust 10.
	FM signal gen.	<u></u>	V.T.V.M.			
1	Antenna terminal	87.5 MHz (Modulated)	FM det. out put tab	87.5 MHz (Low end)	L4 (OSC coil)	Maximum
2	Antenna terminal	108.7 MHz (108.0 MHz) (Modulated)	FM det. output tab	108.7 MHz (108.0 MHz) (High end)	C1H (OSC trim)	Maximum
3	(Repeat steps 1 and	2 to obtain frequer	icy range.)			
4	Antenna terminal	90 MHz (Modulated)	FM det. output tab	90 MHz	L1 (ANT coil) L2 (RF coil)	Maximum
5	Antenna terminal	108 MHz (Modulated)	FM det. output tab	108 MHz	C1B (ANT trim.) C1DI(RF trim.)	Maximum
6	(Repeat steps 4 and	5, to minimize trac	king error, and st	ep 3 if necessary.)		

): West Germany model

Separation Adjustment

Settings:

Function switch: FM
Mode switch: STEREO
Input signal: 98 MHz, 60 dB
Modulation: Pilot signal 10%

Composite singal 90% Modulation frequency: I KHz Adjustment location: SVR 302

Method:

Tune dial to 98 MHz and adjust SVR 302 for maximum

separation.

• 19 KHz Adjustment

Settings:

Function switch: FM Mode switch: STEREO

Dial position: Detuned from station Adjustment location: SVR 301

Method:

Adjust SVR 301 for 19 KHz \pm 30 Hz frequency at 19 kHz

test point.

• Signal Indicator Adjustment

Settings:

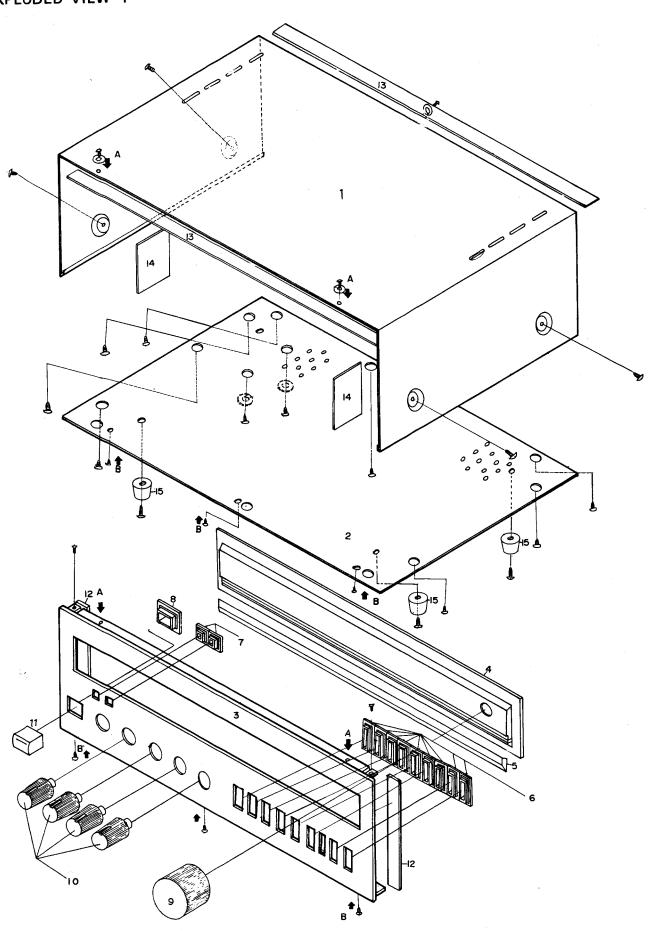
Function switch: FM

Adjustment location: SVR 101

Method:

Adjust SVR 101 for signal indicator LED light up.

EXPLODED VIEW-1



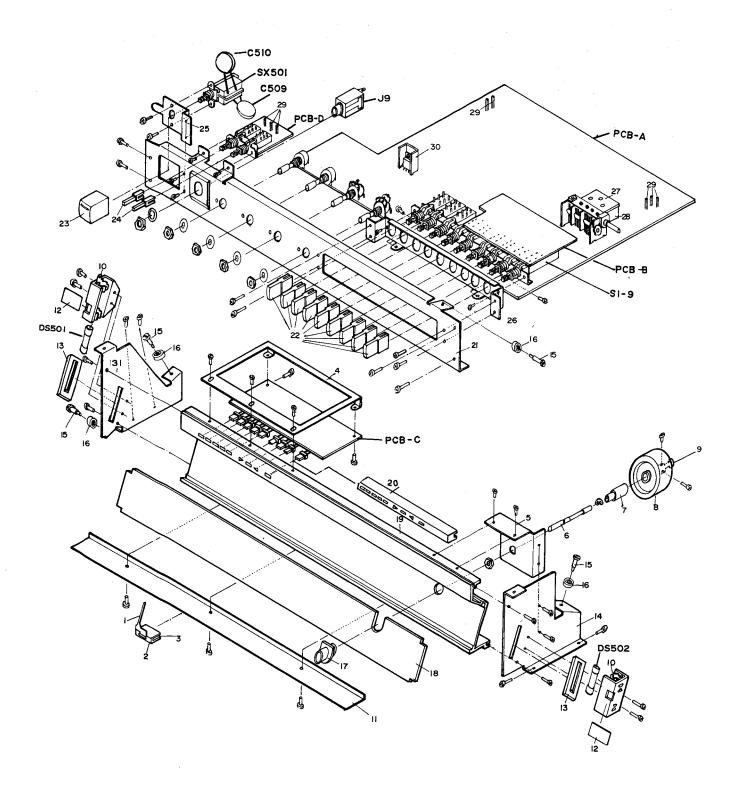
PARTS LIST

MECHANICAL PARTS

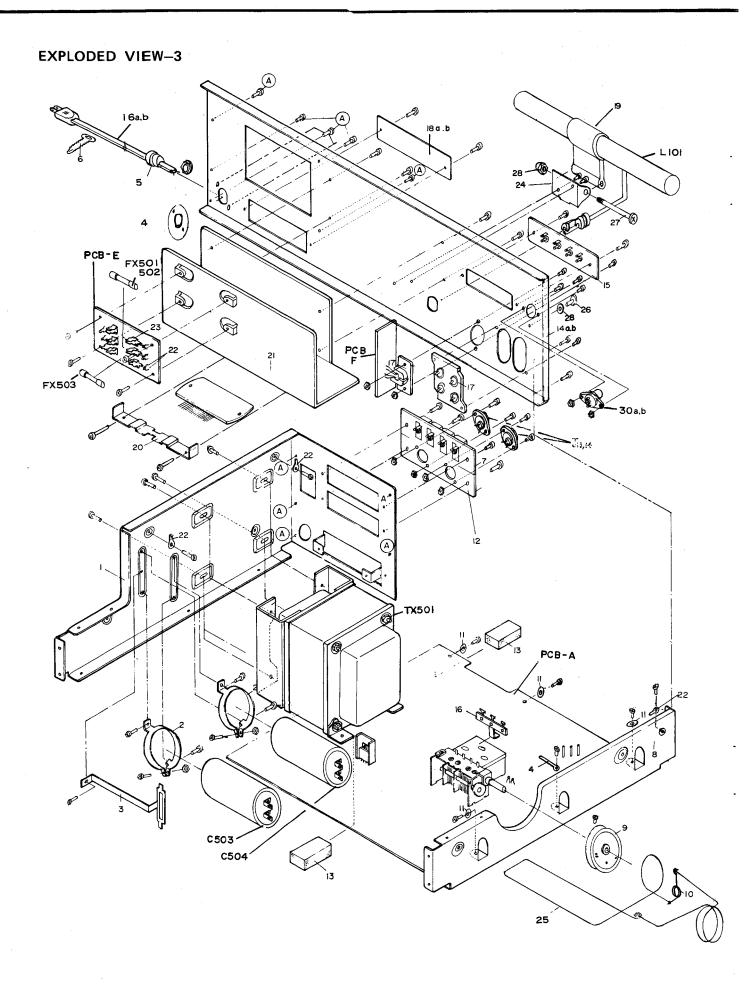
 *mark in this part list shows exclusive part (which is used) for only Model AX-7300.

Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty	
1-1	82-744-221-01		Cabinet	*	1 1	
1-2	82-744-218-01		Chassis, Bottom	*	1 1	
1-3	82-744-229-01		Panel, Front	*	1 1	
1-4	82-744-207-01		Window, Dial	*	1 1	
1-4	82-744-217-01		Mask, Window	*	1	
	82-743-208-01		Guide, Push knob "L"	AX-7700	8	
1-6	82-743-206-01		Guide, Push knob "S"	AX-7700	2	
1-7	82-318-014-01		Guide, Power knob		1	
1-8	82-744-206-01		Knob, Tuning	*	1	
1-9 1-10	82-744-203-01		Knob, Volume	*	4	
•	82-318-025-01		Knob, Power		1	
1-11	82-744-300-01		Spacer, Panel	*	2	
1-12	82-744-301-01		Spacer, Cabinet	*	2	
1-13	1 '		Spacer, Lamp	*	2	
1-14	82-744-621-01		Foot		4	
1-15	87-085-161-01		1 000			

EXPLODED VIEW-2



Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty	
2-1	82-743-219-01		Tip pointer	AX-7700	1	
2-2	82-743-218-01		Cap pointer	AX-7700	1	
2-3	82-744-302-01		Spacer, Slider	*	1 1	
2-4	82-744-303-01		Bracket, LED circuit board	*	1	
2-5	82-744-304-01		Bracket, Tuning	*	1	
2-6	82-744-305-01		Shaft, Driving	*	1	
2-7	82-744-306-01		Bushing	*	1 1	
2-8	82-744-307-01		Flywheel	*	1 1	
2-9	82-744-308-01		Metal	*	1	
2-10	82-743-210-01		Holder, Lamp	AX-7700	2	
2-11	82-744-309-01		Bracket, Slider	*	1	
2-12	82-744-339-01		Spacer, Lamp	*	2	
2-13	82-744-226-01		Holder, Scale	*	2	
2-14	82-744-213-01		Bracket, Scale R	*	1	
2-15	82-744-310-01		Shaft, Guide B1	*	4	
2-16	82-744-201-01		Pulley A	*	4	
2-17	82-744-210-01		Mask, Tuning	*	1	
2-18	82-744-231-01		Scale, Dial	*	1	
2-19	82-744-212-01		Scale, Back	*	1	
2-20	82-743-209-01		Holder, LED	AX-7700	1	
2-21	82-744-211-01		Chassis, Front	*	1	
2-22	82-744-002-01		Knob, Push "L"	*	. 8	
2-23	82-318-025-01		Knob, Power		1	
2-24	82-744-001-01		Knob, Push "S"	*	2	
2-25	82-744-311-01		Bracket, Power switch	*	1	
2-26	82-744-312-01		Bracket, Push switch	*	1	
2-27	82-744-696-01		Shield cap	*	1	
2-28	82-744-697-01		Shield fence	*	1	
2-29	82-744-698-01		Pin	*	45	
2-30	82-744-699-01		Heat sink TR	*	1	
2-31	82-744-313-01		Bracket, Scale L	*	1	



Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty	
3-1	82-744-216-01		Frame, L	*	1	
3-2	82-744-673-01		Band capacitor	*	2	
3-3	82-743-274-01		Capacitor ground bar	AX-7700	1 1	
3-4	82-744-315-01		Clamper, Cord bracket	*	1	
3-5	82-744-675-01		Clamper cord	*	1	
3-6	82-744-317-01		Band, Cord wire	*	1	
3-7	82-744-672-01	* *	Terminal board	*	2	
3-8	82-744-222-01		Frame R	*	1	
3-9	82-744-202-01		Wheel, Drum	*	1	
3-10	82-744-318-01	•	Spring, Dial	*	1	
3-11	82-744-319-01		Washer, PCB	*	4	
3-12	82-744-320-01		Holder, DIN jack, Terminal board	*	1	
3-13	82-744-321-01		Cushion, PCB	*	2	
3-14a	82-744-325-01		Chassis, Rear (H model only)	*	1	İ
3-14b	82-744-326-01		Chassis, Rear (C model only)	. *	1	
3-15	82-744-670-01		Screw, Terminal board	*	1	
3-16a	82-743-670-01		AC power cord (E model only)	AX-7700	1	
3-16b	82-743-685-01		AC power cord (K model only)	AX-7700	1	
3-17	82-743-653-01		Pin jack ass'y	AX-7700	1	
3-18a	82-744-331-01		Label, Rating (E model only)	*	1	
3-18b	82-743-332-01		Label, Rating (K model only)	AX-7700	1	
3-19	82-744-232-01		Band, Bar antenna	*	1	
3-20	82-744-333-01		Bracket, IC	*	1	1
3-21	82-744-219-01		Heat sink M	*	1	
3-22	82-744-678-01		Tap stud	*	6	
3-23	82-744-626-01		Clip, Fuse	*	6	
3-24	82-744-334-01		Bracket, Bar antenna	*	1	
3-25	82-744-335-01		Dial cord	*	1	
3-26	82-744-337-01		Ground screw	*	1	
3-27	82-744-338-01		Screw, RH	*	1	
3-28	82-744-336-01		Washer, Plain	*	1	
3-29	82-744-674-01		Lug	*	1	
3-30a	82-744-680-01		FM antenna coxial plug (E model only)	*	1	1
3-30b	82-744-625-01		FM antenna coxial plug (K model only)	*	1	I

ELECTRICAL MAIN PARTS LIST

Symbol No.	Part No.	Description	Symbol No.	Part No.	Description
≪MAIN CIRC	UIT BOARD	SECTION≫	TC601,602,	82-743-681-01	Trimmer
PCB-A	82-743-700-01	Main circuit board	603,604		
IC101	82-743-618-01	IC, HA-1197	T601	82-744-616-01	LW OSC coil
C201	82-743-617-01	IC, HA-1137W	T602	82-743-645-01	MW OSC coil
	82-481-727-01	IC, HA-1156W		İ	
,	82-743-616-01	IC, HA-1457	≪ LED CIRC	UIT BOARD	SECTION >>
C1401	82-744-605-01	IC, SI-1525HD	PCB-C	82-744-631-01	1
21	87-026-120-01	FET, 3SK46	IC701	82-027-261-01	IC, LB-1405
	82-743-624-01	Transistor, KSC1674 (O)	10701	82-743-615-01	
12,3					I
2201	82-743-626-01	Transistor, KSC838 (O)	Q701,706	82-743-627-01	Transistor, KSC945 (Y)
	82-743-627-01	Transistor, KSC945 (Y)	Q702,707,	82-743-629-01	Transistor, KSC1008 (Y)
2401,402,451	82-743-625-01	Transistor, KSC1222 (U)	708		
452			Q703,705	82-743-623-01	Transistor, KSA733 (Y)
2501	82-743-630-01	Transistor, KSD288 (O)	Q704	82-743-622-01	Transistor, KSA708 (Y)
2502	82-743-622-01	Transistor, KSA708 (Y)	D701,702	82-743-633-01	Diode, 1SS53
2503	82-743-629-01	Transistor, KSC1008 (Y)	LED701	87-027-544-01	Light emitting diode,
0101,102,201,	82-743-633-01	Diode, 1SS53			LN-05202P (SIGNAL)
301		·	LED702,703	82-743-638-01	Light emitting diode,
0501,502,503,	82-744-606-01	Diode, 1N5173	•		SL-139B (TUNING)
504	02 / / / 000 0 /	2.003,	LED704	87-027-543-01	Light emitting diode,
	82-743-634-01	Zener diode, RD12E	E2D704	07-027-5-01	LN-317GP (TUNING)
ZD501			1 50705	07 007 540 04	
ZD502,503	82-743-635-01	Zener diode, RD18E	LED705	87-027-542-01	Light emitting diode,
ZD1401	82-743-636-01	Zener diode, RD6.8E			LN-217RP (FM STEREO)
L1	82-743-641-01	FM antenna coil	ZD701	82-743-636-01	Zener diode RD-6.8E
L2	82-743-643-01	FM RF coil			< Resistors >
L3,202	82-743-691-01	Coil, 2.2µH	R722	82-743-605-01	680Ω 1W Metal film
L4	82-743-644-01	FM OSC coil	R724	82-743-602-01	1 ***
L101	82-743-683-01	MW, LW bar antenna coil	11/24	02-743-002-01	680Ω 2W Metal film
L102	82-743-693-01	Coil, 2.2µH	∠ CIMITOU O	OIDOUIT DO	ADD OFOTIONS
L201	82-743-692-01	Coil, 18µH			ARD SECTION >
1	82-743-690-01	Coil, 470µH	PCB-D	82-743-703-01	1
L301,501	82-744-609-01	Low pass filter	\$1401,1402	82-743-620-01	Push switch (SPEAKER)
LPF300		· ·	L1401,1451	82-743-694-01	Coil, 2.2µH
C1	82-744-604-01	VC			
	87-008-136-01	FM ceramic filter	≪ FUSE CIF	CUIT BOARD	SECTION ≫
T102	82-743-660-01	AM ceramic filter	⚠ PCB-E	82-743-704-01	Fuse circuit board
		transformer	∱ FX501,502	82-744-622-01	Fuse, "T" 5A
T103	82-743-649-01	AM IFT	<u> </u>	82-744-629-01	Fuse label, "T" 5A
T201	82-743-646-01	FMIFT	∱ FX503	82-743-678-01	Fuse, "T" 1.6A
T202	82-494-782-01	FM IFT	Z	82-743-715-01	Fuse label, "T" 1.6A
T203	82-494-783-01	FMIFT	\triangle	į.	1
VR401	82-743-609-01	Volume, 250kΩ-W	Z . \(\)	82-744-626-01	Fuse clamp
V11401	02 / 10 000 01	(BALANCE)	4.010.010.0	!	
VD402.452	82-744-602-01			UIT BOARD	SECTION ≫
VR402,452	02-74-002-01	(VOLUME)	PCB-F	82-743-705-01	DIN circuit board
	00 744 601 01	l .	Q801,851	82-743-625-01	Transistor, KSC1222 (L)
VR403,404,	82-744-601-01	Volume, 50kΩ-B	J10	82-743-673-01	DIN jack (TAPE REC/PLAY)
453,454	1	(BASS, TREBLE)			
SVR101	87-021-363-01	Semi-fixed resistor, 100kΩ-B	≪ MISCELLA	ANEOUS≫	
SVR301	82-744-628-01	Semi-fixed resistor, 4.7kΩ-B	∱ TX501	82-744-617-01	Power transformer
SVR302	87-021-367-01	Semi-fixed resistor, 47kΩ-B	<u> </u>	02777077	(E model only)
S1,2,3,4,5,6,	82-744-618-01	Push switch (PHONO, AUX,	∱ TX501	82-744-623-01	Power transformer
7,8,9		LW, MW, FM, LOUDNESS,	<u>™1 ×201</u>	02-744-023-01	
.,0,0		MODE, MUTING, TAPE	A avros	00 744 040 04	(K model only)
		MONITOR	<u>_</u> \$x501	82-744-619-01	Power switch
			<u>4</u>	82-743-670-01	AC power cord
		< Resistors >	Δ	1	(E model only)
	82-743-606-01	82Ω ½W Fuse resistor		82-743-685-01	AC power cord
∠R501		330Ω ½W Fuse resistor			(K model only)
	82-743-607-01	33034 /2VV 1 dae (esisto)			
	82-743-607-01 82-744-612-01	150Ω ½W Metal film	J1,2,3,4	82-743-653-01	Pin jack ass'y
	1 -		J1,2,3,4	82-743-653-01	
	82-744-612-01	150Ω ½W Metal film			(PHONO, AUX)
R505 R423 ≪ SWITCH-1	82-744-612-01 CIRCUIT BO	150Ω 1/2W Metal film ARD SECTION ≫	J 9	82-743-652-01	(PHONO, AUX) Jack 6.3φ (PHONES)
≪ SWITCH-1 PCB-B	82-744-612-01 CIRCUIT BO 82-743-701-01	150Ω ½W Metal film ARD SECTION ≫ Switch-1 circuit board	J9 J13,14	82-743-652-01 82-743-672-01	(PHONO, AUX) Jack 6.3¢ (PHONES) DIN speaker jack
	82-744-612-01 CIRCUIT BO	150Ω 1/2W Metal film ARD SECTION ≫	J 9	82-743-652-01	(PHONO, AUX) Jack 6.3φ (PHONES)

Symbol No.	Part No.	Description			
	82-743-710-01	Speaker terminal			
	82-744-680-01	FM antenna coxial plug			
		(E model only)			
	82-744-625-01	FM antenna coxial plug			
		(K model only)			
		< Capacitors >			
C503,504	82-744-603-01	6800pF 35V Electrolytic			
C509,510	82-743-712-01	4700pF Ceramic			
770000,010		(E model only)			
↑ C509,510	82-743-719-01	4700pF Ceramic			
		(K model only)			

This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special safety specifications. Therefore, when replacing a component with this symbol, make absolutely sure that you use a designated part.

ACCESSORIES/PACKAGE

Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty	
1	82-744-853-01		Printed indiv., Packing	*	1	
2	82-744-855-01		Cushion L, Printed indiv.	*	1	
3	82-744-856-01		Cushion R, Printed indiv.	*	1	
4	82-744-857-01		Poly-vinyl sack (for case)	*	1	
5	87-056-009-41		Distributors list		1	
6	87-056-008-11		Label, AC power cord (K model only)		1	
7	82-744-903-01		Instructions booklet (E model only)	*	1 1	
8	87-744-902-01		Instruction booklet (K model only)	*	1 1	

